


```

FFFFFFFFF 000000 RRRRRRRR EEEEEEEEE NN NN DDDDDDDD FFFFFFFF IIIIII LL
FFFFFFFFF 000000 RRRRRRRR EEEEEEEEE NN NN DDDDDDDD FFFFFFFF IIIIII LL
FF 00 00 RR RR EE NN DD DD FF II LL
FF 00 00 RR RR EE NN DD DD FF II LL
FF 00 00 RR RR EE NN DD DD FF II LL
FF 00 00 RR RR EE NN DD DD FF II LL
FFFFFFFFF 00 00 RRRRRRRR EEEEEEEE NN NN DD DD FFFFFFFF II LL
FFFFFFFFF 00 00 RRRRRRRR EEEEEEEE NN NN DD DD FFFFFFFF II LL
FF 00 00 RR RR EE NN NN DD DD FF II LL
FF 00 00 RR RR EE NN NN DD DD FF II LL
FF 00 00 RR RR EE NN NN DD DD FF II LL
FF 00 00 RR RR EE NN NN DD DD FF II LL
FF 00 00 RR RR EE NN NN DD DD FF II LL
000000 000000 RR RR EEEEEEEEE NN NN DDDDDDDD FFFFFFFF IIIIII LL
000000 000000 RR RR EEEEEEEEE NN NN DDDDDDDD FFFFFFFF IIIIII LL
LL IIIIII SSSSSSSS
LL IIIIII SSSSSSSS
LL II SS
LL II SS
LL II SS
LL II SS
LL II SSSSSS
LL II SSSSSS
LL II SS
LL II SS
LL II SS
LL II SS
LLLLLLLLLL IIIIII SSSSSSSS
LLLLLLLLLL IIIIII SSSSSSSS

```

```
1 0001 0 MODULE FOR$ENDFILE ( ! FORTRAN ENDFILE statement
2 0002 0 IDENT = '1-006' ! File: FORENDFIL.B32 Edit: SBL1006
3 0003 0 ) =
4 0004 1 BEGIN
5 0005 1
6 0006 1
7 0007 1 *****
8 0008 1 *
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26 0026 1 *
27 0027 1 *
28 0028 1 *****
29 0029 1
30 0030 1
31 0031 1 ++
32 0032 1 FACILITY: FORTRAN Support Library
33 0033 1
34 0034 1 ABSTRACT:
35 0035 1
36 0036 1 Contains routine FOR$ENDFILE for support of FORTRAN endfile
37 0037 1 statement.
38 0038 1
39 0039 1 ENVIRONMENT: User Mode - AST re-entrant
40 0040 1
41 0041 1 AUTHOR: Jonathan M. Taylor, CREATION DATE: 24-Oct-1977
42 0042 1
43 0043 1 MODIFIED BY:
44 0044 1
45 0045 1 [Previous edit history deleted. SBL 15-July-1981]
46 0046 1 1-001 - Update version number and copyright notice. JBS 16-NOV-78
47 0047 1 1-002 - Change REQUIRE file names from FOR... to OTS... JBS 07-DEC-78
48 0048 1 1-003 - Change OTSOPN back to FOROPN, and change the prefix on LUN
49 0049 1 parameters from OPEN to LUB. JBS 13-DEC-78
50 0050 1 1-004 - Implement ERR= and IOSTAT=. SBL 1-May-1979
51 0051 1 1-005 - Correct module name. SBL 15-July-1981
52 0052 1 1-006 - Move ACTUALCOUNT declaration inside routine. Add SWITCHES
53 0053 1 declaration. SBL 16-Jun-1982
54 0054 1 --
```



```
56 0055 1 |
57 0056 1 | SWITCHES:
58 0057 1 |
59 0058 1 |
60 0059 1 | SWITCHES ADDRESSING_MODE (EXTERNAL = GENERAL, NONEXTERNAL = WORD_RELATIVE);
61 0060 1 |
62 0061 1 |
63 0062 1 | LINKAGES:
64 0063 1 |
65 0064 1 | REQUIRE 'RTLIN:OTSLNK';           ! define all linkages
66 0493 1 |
67 0494 1 |
68 0495 1 | TABLE OF CONTENTS:
69 0496 1 |
70 0497 1 |
71 0498 1 | FORWARD ROUTINE
72 0499 1 |     FOR$ENDFILE;
73 0500 1 |
74 0501 1 |
75 0502 1 | INCLUDE FILES:
76 0503 1 |
77 0504 1 | REQUIRE 'RTLML:FORERR';           ! FORTRAN error number definitions
78 0572 1 | REQUIRE 'RTLIN:OTSMAC';           ! Define macros
79 0766 1 | REQUIRE 'RTLIN:RTLPSECT';         ! Define DECLARE_PSECTS macro
80 0861 1 | LIBRARY 'RTLSTARLE';             ! STARLET library for symbols and macros
81 0862 1 | REQUIRE 'RTLIN:FOROPN';           ! FORTRAN OPEN parameters
82 1125 1 | REQUIRE 'RTLML:FORPAR';           ! inter-module constants
83 1148 1 | REQUIRE 'RTLML:OTSLUB';           ! LUB offset definitions
84 1288 1 | REQUIRE 'RTLML:OTSISB';           ! to get ISB length only
85 1456 1 |
86 1457 1 | MACROS:
87 1458 1 |     NONE
88 1459 1 |
89 1460 1 |
90 1461 1 | EQUATED SYMBOLS:
91 1462 1 |     NONE
92 1463 1 |
93 1464 1 |
94 1465 1 | PSECT DECLARATIONS:
95 1466 1 |
96 1467 1 |
97 1468 1 |     DECLARE_PSECTS (FOR);         ! declare PSECTs for FOR$ facility
98 1469 1 |
99 1470 1 |
100 1471 1 | OWN STORAGE:
101 1472 1 |     NONE
102 1473 1 |
103 1474 1 |
104 1475 1 | EXTERNAL REFERENCES:
105 1476 1 |
106 1477 1 |
107 1478 1 | EXTERNAL ROUTINE
108 1479 1 |     FOR$$IOSTAT HND,              ! error handler
109 1480 1 |     FOR$$CB_PUSH: JSB CB_PUSH NOVALUE, ! Get a LUB/ISB/RAB
110 1481 1 |     FOR$$CB_POP: JSB CB_POP NOVALUE,   ! Return the I/O system
111 1482 1 |     FOR$$SIGNAL STO: NOVALUE,         ! convert error number and signal_stop
112 1483 1 |     FOR$$OPEN_DEFLT: CALL_CCB NOVALUE; ! default OPEN routine
```

```
114 1484 1 GLOBAL ROUTINE FOR$ENDFILE ( ! FORTRAN ENDFILE statement support
115 1485 1 UNIT,
116 1486 1 ERR_EQL)
117 1487 1 =
118 1488 1 ++
119 1489 1 FUNCTIONAL DESCRIPTION:
120 1490 1
121 1491 1 Perform FORTRAN ENDFILE semantics. Check file and record type
122 1492 1 for legality of the ENDFILE.
123 1493 1 Open the file if not already open and set flag to finish defaults later.
124 1494 1 Write a one byte ^Z record.
125 1495 1
126 1496 1 FORMAL PARAMETERS:
127 1497 1
128 1498 1 UNIT.rl.v logical unit number
129 1499 1 ERR_EQL.rl.v If 0 or omitted, all errors are signalled.
130 1500 1 If non-zero, errors unwind to caller.
131 1501 1
132 1502 1 IMPLICIT INPUTS:
133 1503 1
134 1504 1 LUB$V_NOTSEQORG 1 if ORGANIZATION is not 'SEQUENTIAL'
135 1505 1 LUB$V_DIRECT 1 if ACCESS = 'DIRECT' or define file done
136 1506 1 LUB$V_FIXED 1 if fixed length records specified in open
137 1507 1 LUB$V_UNFORMAT 1 if FORMAT = 'UNFORMATTED' or define
138 1508 1 file done
139 1509 1 LUB$V_SEGMENTED 1 if SEGMENTED RECORDTYPE in OPEN statement
140 1510 1 or defaulted that way
141 1511 1 LUB$V_OPENED 1 if file already open on this unit
142 1512 1
143 1513 1 IMPLICIT OUTPUTS:
144 1514 1
145 1515 1 LUB$L_LOG_RECNO Incremented if ^Z record written
146 1516 1
147 1517 1 ROUTINE VALUE:
148 1518 1
149 1519 1 An IOSTAT value.
150 1520 1
151 1521 1 SIDE EFFECTS:
152 1522 1
153 1523 1 File is opened if closed previous to ENDFILE
154 1524 1 SIGNAL_STOPs error FOR$ ENDFILERR if ENDFILE ignored for this type file
155 1525 1 SIGNAL_STOPs FOR$ ENDFILERR if RMS $PUT error.
156 1526 1
157 1527 1 --
158 1528 1
159 1529 2 BEGIN
160 1530 2
161 1531 2 GLOBAL REGISTER
162 1532 2 CCB = 11: REF BLOCK[, BYTE];
163 1533 2
164 1534 2 LOCAL
165 1535 2 L_UNWIND_ACTION: VOLATILE,
166 1536 2 L_ERR_EQL PRES: VOLATILE,
167 1537 2 L_EOF_CHAR: BYTE;
168 1538 2
169 1539 2 BUILTIN
170 1540 2 ACTUALCOUNT;
```

```
171 1541 2
172 1542 2
173 1543 2
174 1544 2
175 1545 2
176 1546 2
177 1547 2
178 1548 2
179 1549 2
180 1550 2
181 1551 2
182 1552 2
183 1553 2
184 1554 2
185 1555 2
186 1556 2
187 1557 2
188 1558 2
189 1559 2
190 1560 2
191 1561 2
192 1562 2
193 1563 2
194 1564 2
195 1565 2
196 1566 2
197 1567 2
198 1568 2
199 1569 2
200 1570 2
201 1571 2
202 1572 2
203 1573 2
204 1574 2
205 1575 2
206 1576 2
207 1577 2
208 1578 2
209 1579 2
210 1580 2
211 1581 2
212 1582 2
213 1583 2
214 1584 2
215 1585 2
216 1586 2
217 1587 2
218 1588 2
219 1589 2
220 1590 2
221 1591 2
222 1592 2
223 1593 2
224 1594 2
225 1595 2
226 1596 2
227 1597 2

ENABLE
FOR$$IOSTAT_HND (L_UNWIND_ACTION, L_ERR_EQL_PRES);

!+
! Determine if ERR= is present.
!-

IF ACTUALCOUNT () GTR 1
THEN
  L_ERR_EQL_PRES = .ERR_EQL
ELSE
  L_ERR_EQL_PRES = 0;

!+
! Action on error is not to pop a LUB.
!-

L_UNWIND_ACTION = FOR$K_UNWINDNOP;

!+
! Allocate a LUB/ISB/RAB for this logical unit.
! ON return, CCB points to the current control block.
!-

FOR$$CB_PUSH (.UNIT, LUB$K_LUN_MIN);

!+
! UNwind action is now to pop the LUB.
!-

L_UNWIND_ACTION = FOR$K_UNWINDPOP;

!+
! Check various file attributes. File must be:
! Sequential organization
! Sequential access
! Variable length records
! Must have segmented records if unformatteed
!-

IF .CCB[LUB$V_NOTSEQORG] OR
  .CCB[LUB$V_DIRECT] OR
  .CCB[LUB$V_FIXED] OR
  (.CCB[LUB$V_UNFORMAT] AND .CCB[LUB$V_SEGMENTED] EQL 0)
THEN
  FOR$$SIGNAL_STO (FOR$K_ENDFILERR)
ELSE
  BEGIN
    !+
    ! If the file is not open, default open it.
    ! But do not specify whether formatted or unformatted.
    ! That will depend on the next I/O statement executed
    ! so just set LUB$V_ENDFILOPN to be tested on every I/O statement.
    ! When set, it will be cleared and the remaining defaults will be specified.
```



```
:-
IF .CCB[LUB$V_OPENED] EQL 0
THEN
    BEGIN
        FOR$$OPEN_DEFLT (OPENS$K_ACC_SEQ,
                        OPENS$K_TYP_NEW,
                        OPENS$K_FOR_UN$);
        CCB[LUB$V_ENDFILEOPN] = 1;
    END;

    !+ Manually write a one byte control Z record to the file.
    !-

    L_EOF_CHAR = FOR$K_CONTROL_Z;
    CCB[RAB$L_RBF] = L_EOF_CHAR;
    CCB[RAB$W_RSZ] = 1;

    IF NOT $PUT (RAB = .CCB)
    THEN
        FOR$$SIGNAL_STO (FOR$K_ENDFILEERR);

    !+ Increment the logical record number for backspace.
    !-

    CCB[LUB$L_LOG_RECNO] = .CCB[LUB$L_LOG_RECNO] + 1;

    END;

    !+ Return the I/O system to its former state.
    !-

FOR$$CB_POP ();

RETURN 0;          ! Success IOSTAT value
END;
```

```
.TITLE FOR$ENDFILE
.IDENT \1-006\
```

```
.EXTRN FOR$$IOSTAT_HND
.EXTRN FOR$$CB_PUSH, FOR$$CB_POP
.EXTRN FOR$$SIGNAL_STO
.EXTRN FOR$$OPEN_DEFLT
.EXTRN SY$SPUT
```

```
.PSECT _FOR$CODE, NOWRT, SHR, PIC, 2
```

```
.ENTRY FOR$ENDFILE, Save R2, R3, R11
MOVAB FOR$$SIGNAL_STO, R3
SUBL2 #12, SP
CLRQ L_ERR_EQL PRES
MOVAL 8$, (FP)
```

```
53 00000000G 00 080C 00000
5E          00 9E 00002
          0C C2 00009
          04 AE 7C 0000C
6D 0081 CF DE 0000F
```

: 1484

: 1529

		01		6C	91	00014	CMPB	(AP), #1	1549
				07	1B	00017	BLEQU	1\$	
	04	AE	08	AC	D0	00019	MOVL	ERR_EQL, L_ERR_EQL_PRES	1551
				03	11	0001E	BRB	2\$	
			04	AE	D4	00020	CLRL	L_ERR_EQL_PRES	1553
	08	AE		01	D0	00023	MOVL	#T, L_UNWIND_ACTION	1559
				50	D4	00027	CLRL	R0	1566
	52		04	AC	D0	00029	MOVL	UNIT, R2	
		00000000G		00	16	0002D	JSB	FOR\$CB_PUSH	
			08	AE	D4	00033	CLRL	L_UNWIND_ACTION	1572
14	A1	AB		03	E0	00036	BBS	#3, -95(CCB), 3\$	1582
OF	FC	AB		04	E0	0003B	BBS	#4, -4(CCB), 3\$	1583
OA	FD	AB		02	E0	00040	BBS	#2, -3(CCB), 3\$	1584
OC	FD	AB		01	E1	00045	BBC	#1, -3(CCB), 4\$	1585
07	FD	AB		03	E0	0004A	BBS	#3, -3(CCB), 4\$	
				21	DD	0004F	PUSHL	#3\$	1587
		63		01	FB	00051	CALLS	#1, FOR\$\$SIGNAL_STO	
				35	11	00054	BRB	7\$	
		12	FC	AB	EB	00056	BLBS	-4(CCB), 5\$	1600
		7E		01	CE	0005A	MNEGL	#1, -(SP)	1603
				02	DD	0005D	PUSHL	#2	
				02	DD	0005F	PUSHL	#2	
00000000G	00			03	FB	00061	CALLS	#3, FOR\$OPEN_DEFLT	
	FE	AB		02	88	00068	BISB2	#2, -2(CCB)	1606
	6E			1A	90	0006C	MOVB	#26, L_EOF_CHAR	1613
28	AB			6E	9E	0006F	MOVAB	L_EOF_CHAR, 40(CCB)	1614
22	AB			01	B0	00073	MOVW	#T, 34(CCB)	1615
				5B	DD	00077	PUSHL	CCB	1617
00000000G	00			01	FB	00079	CALLS	#1, SYSSPUT	
	05			50	EB	00080	BLBS	R0, 6\$	
				21	DD	00083	PUSHL	#3\$	1619
	63			01	FB	00085	CALLS	#1, FOR\$\$SIGNAL_STO	
		E0		AB	D6	00088	INCL	-32(CCB)	1625
		00000000G		00	16	0008B	JSB	FOR\$CB_POP	1633
				50	D4	00091	CLRL	R0	1635
					04	00093	RET		1636
				0000	00094	8\$:	.WORD	Save nothing	1529
	50	08		AC	D0	00096	MOVL	8(AP), R0	
	50	04		A0	D0	0009A	MOVL	4(R0), R0	
		FB		A0	9F	0009E	PUSHAB	L_ERR_EQL_PRES	
		FC		A0	9F	000A1	PUSHAB	L_UNWIND_ACTION	
				02	DD	000A4	PUSHL	#2	
				5E	DD	000A6	PUSHL	SP	
	7E	04		AC	7D	000AB	MOVQ	4(AP), -(SP)	
00000000G	00			03	FB	000AC	CALLS	#3, FOR\$IIOSTAT_HND	
				04	000B3		RET		

; Routine Size: 180 bytes, Routine Base: _FOR\$CODE + 0000

: 267 1637 1
: 268 1638 1 END
: 269 1639 0 ELUDOM

PSECT SUMMARY

Name	Bytes	Attributes
_FOR\$CODE	180	NOVEC,NOWRT, RD , EXE, SHR, LCL, REL, CON, PIC,ALIGN(2)

Library Statistics

File	----- Total	Symbols Loaded	----- Percent	Pages Mapped	Processing Time
_\$255\$DUA28:[SYSLIB]STARLET.L32;1	9776	7	0	581	00:01.1

COMMAND QUALIFIERS

BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/NOTRACE/LIS=LIS\$:FORENDFIL/OBJ=OBJ\$:FORENDFIL MSRC\$:FORENDFIL/UPDATE=(ENH\$:FORENDFIL)

Size: 180 code + 0 data bytes
Run Time: 00:12.9
Elapsed Time: 00:47.2
Lines/CPU Min: 7652
Lexemes/CPU-Min: 39646
Memory Used: 168 pages
Compilation Complete

0180

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 VAX/VMS V4.0

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